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Flax Dressing by Hand

By WILLIAM B. SPRAGUE

[The capital letters interspersed through the text refer to the list of authorities at the end of the article.]

The first use of the flax plant for textile purposes is lost in the mists of antiquity. "The frequent mention of fine linen in Scripture must be remarked by every reader of the Old Testament, and the evidence which is afforded by the unrolling of Egyptian mummies, that the fine linen of Egypt was actually woven from flax, is sufficient to prove that the same plant, which we now (1852) employ, furnished one of the most ancient manufactures known. The fineness of some of this linen, compared with what is woven in Egypt at the present day, also shows that the ancients had arrived at a high degree of skill in the preparation of this valuable substance." (L). The seed also, at least for many centuries, has been valued for the oil which may be extracted from it, which we call "linseed oil." (K).

The stalks of the plant are hollow fibrous tubes, from two to three feet high, (G). The central part is known variously as the *bullen* (D), *hexe* or *bun* (A), but more commonly as the *boon* (L, M). On the outer surface of this grow the useful fibers, described by an early writer as "the threads of the bark" (D), but more technically termed the *harl* (M), which in turn is covered with a thin membrane (M). The processes of dressing, which will now be described, were designed to separate these fibers from the worthless parts, and to make them suitable for spinning into linen thread. The culture of the plant, with which we are not now immediately concerned, is described in several authoritative works (C, G, L, M).

A very crude wood-cut in a book published in 1826 (K) shows a farmer cutting down a crop with a sickle, and is entitled "Reaping Flax," but this is obviously erroneous, not only because the stalks tower above the mower's head, and hence could not possibly be flax, but because the responsible authorities unanimously agree that flax was invariably pulled up from the roots (C, D, E, G,), and never cut down, as the roots contained much of the valuable fiber, which would then be wasted (F).

As soon as the plants were dry enough to put under cover, (C) they were *rippled*, to remove the seed bolls (A). The *ripple* (G, L, N, Fig. 1), or *ripple comb* (A, L) is described by

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Our Purpose

The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men and other workers.

Dues

The annual dues are one dollar, payable September first, for the year immediately ensuing. *The Chronicle* for the current year is sent to all members without additional charge. Back numbers (except No. 12) may be secured from the Treasurer for 20c each. For further information, address any of the officers. See page 5.

Curious Symbols

By H. K. LANDIS

The interest shown in my contribution entitled "Curious Dates" on page 6 of THE CHRONICLE for January, especially the remarks of Mr. Sandford in your March issue, encourages me to again discuss another phase of Pennsylvania dutch culture of even greater interest, the use of symbols. It is of course acknowledged that, in matters of opinion, we all have equal rights to originate, accept or reject. In this field, proof itself is more or less opinion, based on probability, reason, precedent or tradition. Interpretation of curious marks or symbols should be looked upon in this light, for it is only by trying that we can arrive at the truth.

The culture of our dutchland, the counties lying to the eastward of the Blue Ridge in Pennsylvania, was brought over with the German and Swiss immigrants, and, although it is fading out, in the earlier days it was distinctive and prominent. These people shipped from Rotterdam and English ports, and their residence in those sections, also the time spent by the Swiss in Alsace and the Palatinate, may have colored their original folk beliefs, yet, in our early dutchland, they became fixed and distinctive, although not always uniform.

Just one word on the term "dutch," spelled with the minuscule or lower case d, because our dutchland is not a recognized proper name. The English of that day referred to the Deutcher from Deutchland as dutch, which had nothing to do with Holland Dutch — as almost every one knows. When they arrived at Philadelphia, the English-speaking people referred to them as dutch or dutchmen, as they did in England, with no thought of confusing them with the Holland

Dutch and Nederlanders of their neighboring colony. So, the term persisted. The modern German is not the same thing as the descendants of the persecuted Swiss and German immigrants. Read Matthew Arnold's discourse on "Numbers, or the Majority and the Remnant," first published about 1885, with many subsequent editions. The Pennsylvania dutch may be included in the Pennsylvania German element, but it is not the same thing.

The distinctiveness of this dutch culture is shown in their artifacts, their craftsmanship and their folk lore. The interpretation of the symbols used and frequently found upon their work, is difficult, and the further removed we are in time from the period in which they were made, the more difficult will it be to interpret them. Now is the time to solve such problems; we have abundance of leisure and no one bothers much about what we do, so let us take up some of these symbols and consider them.

The heart symbol is probably the one most generally used, and it is found everywhere. The general impression to be conveyed was probably best expressed by the term "good hearted," although this can be taken in degrees from passionate love, as in valentines, to coldly decorative ironwork. It is a friendly gesture, and there seems to be no definite property or significance so general as to define it otherwise.

The star may originally have had an astrological significance, but here again the application was so broad and general as to admit of a general definition only. One might say it means hope or aspiration; perhaps also destiny, with even some slight talismanic properties. The five and six pointed stars are common, although there is no limit to the number of points for decorative uses. Like the other symbols, it seems to have often been used thoughtlessly and purely for decoration.

The circle is also frequently seen in places not related to structural requirements. Its mystic significance is sometimes, but not always apparent. As an element in decoration, it is common. Perhaps one can say it indicates safety or security. Seldom does it represent eternity or time, but it also has talismanic properties.

The cross has distinctively talismanic relations. It is too large a subject to discuss here. The church or Christian cross was a powerful symbol in many ways. The *tau* cross, shaped like a majuscule T, has antiquity behind it, but is here seldom seen. The St. Andrew cross, however, is common, as the talisman against "hexerei," for it is the famous "hex" sign against which the witches and casters of spells could not prevail, 'tis said. It is shaped like our sign for multiplication. The plus sign, or St. George's cross, appears seldom. It was believed that it warded off the evils brought through sorcery and incantation. Powwowing is a healing art, and has nothing to do with sorcery, which generally works injury instead of cures. The swastika and similar figures, which might be termed motion crosses are still in evidence; to bring good luck is their function. One might add a *grutta-foos* or toad foot and similar talismanic marks having a similar intent.

The tulip was a most popular symbol, and there is no limit to the places where it may be found, as the need for decoration required it. It could hardly be termed a motif for a more pretentious layout, but there was something more in the tulip than a subject in decoration—some mystic symbolism perhaps, something that made that flower so popular in Holland at the time when our dutch came down the Rhine to ship from Rotterdam. Tulips had at that time become the fad and the delight of Europeans, and their culture persisted here for a long time. Perhaps it was the gay and significant flower of spring, and stood for the joy of living, who knows? The writer has frequently seen articles sold for the tulip decoration alone at a considerable price advance. The contention that the origin of this flower was in Persia seems doubtful; more likely it came from the Eastern Mediterranean. The German name is tulipe and the local broadened dutch pronunciation of "dulleban," phonetically "dooleban," is the Danish tulipan or the Italian tulipano from tulipa, a turban.

The pomegranate decoration looks sometimes like a small tomato, and its significance is abundance, by reason of its prolific store of seeds. The horn of plenty occurs also, but is not significantly dutch. The peacock and pheasant are signs of pride, prosperity and opulence. The rose and morning glory and fruits are found in places associated with domestic virtues. Birds also have significance: the dove for serenity and peace; the robin for friendliness and trust; the wren for industry, similarly the bee for industry, providence, etc. The more closely the occurrence of these symbols is related to folk lore, the more significance can be attached to them. On implements, utensils, almanacs, fractur, colored certificates or decorated inscriptions, they have a significance beyond that of mere decoration and add to the value of the piece.

Of course many of the attributes claimed today are purely fanciful, intended to add glamor and justify an exorbitant price. Thus an HL hinge is termed a Holy Lord hinge; a pheasant is called a peacock; a red rose plate is named King's Rose; any pebbled small-figure glass is Sandwich; recently imported Scandinavian decorated bonnet boxes are sold as early dutch bride boxes and decorated chests are bride chests; and more to the same effect. These are examples of more or less fake significances, and have nothing to do with those based on folk lore. One might condemn them if they were not so palpably false.

The reason one seeks for a meaning for these frequent symbols is that almost any striking occurrence had an interpretative "meaning" among these dutch settlers. The actual facts of the case have nothing to do with the matter; if they believed in these "signs" they were real to them and this makes their association with antique objects a matter of increased interest today. They are not matters of casual opinion, lightly to be dismissed by the coverall term "ornament". Much has been written upon the folk lore of these dutch inhabitants, such as "Tulip Ware of the Early Pennsylvania Potters" by Barber; the stove plate book (Bible in Iron) of Mercer and his Tools of the Nation Makers; Stoudt's folk lore and Fogel's Beliefs and Superstitions; Weygandt's Red Hills, etc. So full of folk lore was the daily life and work of those people that one naturally looks for a meaning when any element in decoration obtrudes itself by abnormal repetition.

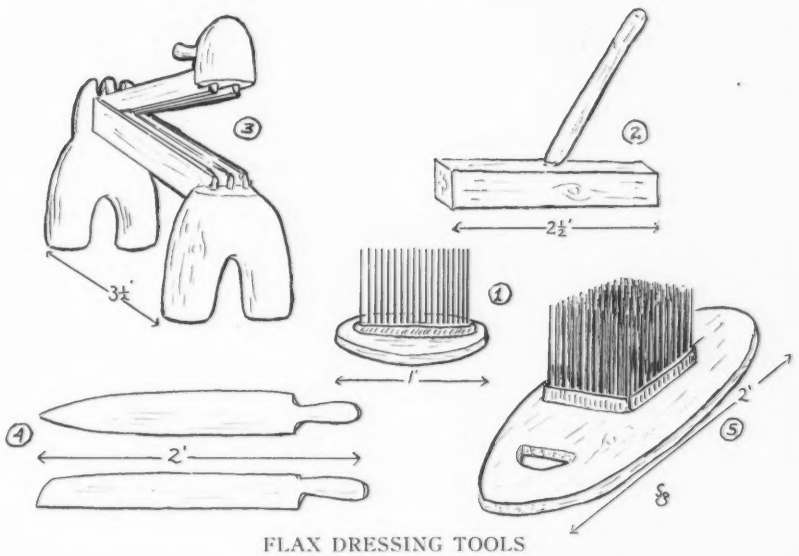
"Rushlights are made in the same way as dipped candles, only having the pith of a rush for a wick instead of cotton; they require no snuffing, as the burned wick falls off as the tallow consumes; hence they are used to burn all night in bedchambers."—Webster & Parkes *American Family Encyclopedia,* copyright 1845, p. 166.

Flax Dressing

(*Continued from page* 1, *column* 2)

an early writer (C) as a "comb, resembling the head of a rake, but with teeth longer and nearer together, *made of hickory or oak*, and fastened upon a block," from which one might infer that some of the early flax combs had wooden teeth, like the combs for rippling broom corn, but more probably the intended meaning was that the stock, rather than the teeth, was "of oak or hickory," as a still earlier authority says "These combs are made of iron, and the teeth are so close that the heads cannot pass through, and are consequently pulled off" (J). Other descriptions are "a comb, consisting of smooth, round, iron teeth, standing about twelve inches out of a block of wood, and fastened down to a long stool" (G); "an instrument with teeth like a comb, 18 inches long, ½ inch square at bottom, and tapering at the point" (N); "an iron comb with teeth 8 inches long, fixed upright in a horizontal beam" (M); and, most definite of all, "a machine, composed of a row of iron teeth, about 18 inches long, half an inch square, a quarter of an inch asunder at the bottom, and tapering slightly, so as to be half an inch asunder at the tops, which are sharpened. These teeth are screwed into a flat piece of wood or of metal, which can be bolted down to a bench or a plank." (L). For some unexplained reason, it is now extremely difficult to find an example of this implement. The writer cannot remember having seen more than half a dozen specimens, as against literally hundreds of *hetchels* (later described), and dozens of almost all the other tools formerly used in dressing flax. Sometimes two workmen sat on opposite sides of the comb, and used it together (L). "Handfuls of flax are laid at the right hand of each rippler, and spreading it out like a fan, each draws his handful alternately through the ripple, allowing the seed-bolls to fall into a winnowing sheet, placed below to receive them. Four men, with two ripple-combs, will take the seed off more than an acre of flax per day. The ripplers lay down their flax on the left hand side" (L). Sometimes, instead of rippling, the seed was threshed from the stalks in the field (J, K), with "a piece of wood on a stick, more heavy than the common flail" (J).

"The bolls are to be *riddled* and winnowed immediately; spread on a clean floor, or on sheets, in the sun, and when sufficiently dry, and beginning to open, threshed. By this method the foul seeds are completely separated" (C). There can still occasionally be found, in Pennsylvania, a wooden mallet, with a very long rectangular head, and the handle set at an angle (Fig. 2), which local tradition denominates a *riveller*, and which is said to have been used for breaking open these seed bolls. A machine for seeding flax and cleaning the seed was invented, prior to 1852 (L).



FLAX DRESSING TOOLS

1. Ripple Comb, for stripping the seed bolls from the stalks. 2. Riveller, for threshing out the seed. 3. Flax Brake, for breaking up the woody core of the stalks. 4. Swingle Knives, for cleaning the fibres of the woody particles. 5. Hetchel, for combing out the tow and laying the fibres straight and parallel to each other.

The first step, in the treatment of the beheaded stalks was the *retting* (A), *rotting*, or *rating* (J, L), that is to say, steeping in water to disintegrate them. Before commencing this process, however, the sap was thoroughly dried out, by tying the stalks together at the upper ends in bundles, called *beats* or *bates*, and banking them against each other, with the lower ends spread out, to form a long tent-shaped structure (A, G). The enclosure called the *steep pool* was formed by driving stakes into the bottom of a pond or stream in the form of a square, and in this the bundles were piled solidly, each alternate layer at right angles to the one beneath, and the pile weighted down with boards or heavy stones (A, J, M). In a few days, — four or five (A), eight to twelve (G), fifteen (D), — the rotting would have proceeded to the desired point, and over-rotting seriously impaired the quality of the finished product. *Dew retting* (A, G) or *ripening* (J) consisted merely of spreading the stalks out on the ground, exposed to the dew and the rain (G), and was a much more tedious process (A, G), requiring as much as two to eight weeks (M); nevertheless, it was the more popular method (A, C). For successful retting, many elements had to be considered and extreme care taken to deal with all of them in the most approved fashion (L, M). The rotted leaves were removed, and the stalks thoroughly dried again (A, D, M), sometimes in an outdoor oven or kiln (F, M).

(*Continued in next issue*)

In the early days of New York City, water was supplied to various parts of the city through wooden pipes. Like all water systems, it was necessary to have valves at various points to shut off certain sections. The valves were very ingenious devices, simple but efficient. They consisted of pieces of wrought iron about three eighths of an inch thick, shaped to fit spaces cut vertically into the walls of the pipe. They were slightly wedge-shaped to effect water tightness, and where there happened to be a leakage past a valve, slivers of wood were forced in between the wood and the valve.

The Chronicle

Plymouth Antiquarian Society

The Antiquarian Society of Plymouth, Massachusetts, is offering a summer course to students, from July 6 to July 25, in the Household Arts of the 17th Century, to be given at the Harlow House. The course will include carding and spinning wool, from the time the sheep is sheared till the yarn is ready for the loom, simple native dyes and dyeing, the raising and preparation of flax, and the spinning of linen thread, simple weaving, cooking in the fire place and brick oven the food common in the 17th century, churning, soap-making, and early lighting, including candle dipping and the making of rushlights. There will also be an elementary course in Early American Costumes, and Early American Furniture and Domestic Architecture. Tuition for three weeks (all courses) is $30.00. The courses will be conducted by Miss Rose Briggs, Curator of Costumes and Assistant to the Directors of the Antiquarian Society, and Miss Bertha Hewitt, whose long experience in the practice and teaching of Early American Arts makes her especially fitted for this work. All the resources of the Antiquarian Society are available to make these courses interesting and instructive. The Plymouth Public Library, Pilgrim Hall, and the Plymouth Registry of Deeds and Probate, also contain much of interest to the student of early America in History, including the original records of Plymouth Colony, and wills and inventories illustrating the domestic conditions of the period. Pleasant rooms near the Harlow House can be reserved for $5.00 per week per person. Breakfasts at 30 cents each are available with the rooms, and luncheons at 50 cents and dinners at 60 cents can be obtained near by, making board and lodging approximately $15.00 per week. Plymouth is a charming place in summer, and there are ample opportunities for salt-water bathing, golf, etc. On week-ends, excursions may be made to points of interest connected with the courses, such as the old Trading Post at Bourne, and The Whaling Museum at New Bedford; the Pioneers' Village, and the House of Seven Gables, in Salem; and the American rooms at the Boston Museum of Fine Arts, etc. Further information can be obtained from Mrs. Walter L. Boyden, 66 Allerton Street, Plymouth, Mass.

The Harlow House was built in 1677 from timbers of the old fort on Burial Hill, then being dismantled at the end of King Philip's War. Its low-ceiled rooms and primitive but sufficient comfort show the type of home the children of the Mayflower were able to build for their children — a type which changed little in country communities until after the Revolution. In the Harlow House the household industries of pioneer New England are emphasized; a hostess in the costume of the period carries out the whole process of spinning and weaving, from the preparation of the flax and the wool to the weaving of linsey-woolsey homespun on the two-hundred-year-old loom, and also gives frequent demonstrations of other household arts, such as dyeing, candlemaking, etc. A visit to this little house with its human and intimate picture of a laborious and vigorous daily life gives a vivid background to the understanding of our early history. The house is on Sandwich Street, beyond the Training Green, about a quarter of a mile from the Post Office on the road to the Cape. It may be reached by local bus leaving the Post Office at quarter of and quarter past the hour, and Hotel Pilgrim on the hour and half hour.

The Antiquarian House, another property of the Society, was built in 1809 by Maj. William Hammatt, a Plymouth merchant whose interests in cordage and shipping suffered severely when the Embargo Act and the War of 1812 temporarily ruined New England commerce. The house was eventually bought by Mr. Thomas Hedge, another Plymouth merchant, who established himself there in 1830. Its architecture has the characteristic grace and delicacy of the second classic revival, and its interesting octagonal plan shows the influence of the fashion set by Thomas Jefferson in the houses he designed for himself and his friends. Inside the house, the furniture, the books, papers and ornaments, the glass, china and household utensils, the clothes, trinkets and toys of a family of that era, are all in their proper places, and are shown by a hostess in the charming dress of the 1830's. The costume collection includes all the typical fashions and accessories of the 19th century, illustrated by appropriate plates from Godey's "Lady's Book" and other fashion magazines of the day.

Washing Machines

"One would suppose that Yankee ingenuity had become well nigh exhausted upon Washing Machines; but we have lately examined a new invention, or rather a modification of an old system, by Mr. James Pullen, of China. His plan is upon the common fluted washboard, but his flutings are made of sheets of copper, zinc, tin— or they may be made of glass, earthen, or similar durable and smooth substances. These sheets or substances are fastened to boards, and used as such boards are commonly used. Now where's the improvement? 1st, In durability — 2d, In its smoothness — and 3d, Ease in performing the operation of rubbing. A common washboard does not last long — it soon gets rough, of course wears out the clothes and makes harder work — they get warped and split, are then patched up with shingle nails, which get rusty, and make a rickety, weak concern — the women scold, and the poor husband has to march off and buy a new one. The metallic rubber will last a long life time, if a little care be taken in drying it after using; for when worn a little on one side it may be turned and worn on the opposite side, and in the contrary direction.

We like the simplicity of the concern. Our washing machines have been too complicated. The inventors seem to have considered it necessary to show their skill in combining the greatest number of mechanical modifications in one piece; and the greater the array of cog wheels, cranks and rollers, the more ingenious has the machine been considered, and the more likely to do its duty without hands. Disappointment has of course followed. This improvement is simple, it does not promise to indulge idleness, but to lighten and facilitate the labor of washing, and render it a pleasure rather than a dreaded task." From the *New England Farmer*, August 6, 1834. — H. G. H.

According to MacKenzie's *Five Thousand Receipts*, a "poy" was a "round implement shod with iron, having a crutch at the top, and a peg through the middle to tread upon," for making holes in which to set poles for hope vines, and a "binge" was a light wooden frame covered with bagging, into which the hops were picked.

Early American Industries Association

Early American Industries Association

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Communications should be addressed as follows: Pertaining to The Chronicle, to W. B. Sprague. Applications for membership, to S. E. Gage. Suggestions for prospective members, to A. E. Lownes. Other matters to E. T. Goodnow. Addresses as above.

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W. B. Sprague, *Editor.*

Advertisements, two cents per word (no display). Remittance should accompany copy.

New York Meeting

On May 13, a sizable group of members, living in or near New York, met at the Architectural League, 115 East 40th Street, for a sociable evening. At the request of the committee in charge, Mr. W. B. Sprague brought to the meeting a miscellaneous lot of articles from his collection, selected, as he explained, for their portability, and including surgical and dental instruments, kitchen and dairy utensils, miniature household implements, toys, and a wide range of other things. Each item was briefly commented upon by Mr. Sprague as he displayed it, and many of them brought out lengthy discussion from the others present. The arrangements for the meeting place and refreshments were made by Mr. George Alk, the new chairman of the local committee, and were completely adequate and satisfactory. Members are again reminded that notices of these local meetings are sent only to those who have so requested. Mr. Alk should be addressed at Room 1611, 285 Madison Avenue, New York.

Annual Meeting

In the near future, it will be incumbent upon the Executive Committee to select the place for the annual meeting, and they would be glad to hear from the members who have any preference in the matter. Although a number of different suggestions have already been made, including a very specific and attractive invitation from Mr. John W. Higgins (printed in full under "Communications") to meet at his Industrial Museum at Worcester, Mass., a large majority of those who have been heard from strongly favor Wiggins' Old Tavern, at Northhampton, Mass., where the Association first came into being and where several thoroughly satisfactory and successful meetings have already been held.

Not Just a Hobby

Although it is probably a fact that, among the group which organized the Association, there was no one who foresaw that it would ever amount to much more than a society of hobbyists with congenial interests, we have been much impressed, particularly during the past year, with the support and encouragement which we are receiving from organizations whose purposes are educational. Without attempting an actual count, we think it safe to say that at least a hundred museums, libraries, historical societies, and schools are represented in our membership by individuals, and we have been deeply gratified by the many friendly and complimentary messages, both oral and written, which we have received from them. One teacher, who had been directed to instruct her class on the subject of early American industry, said that finding The Chronicle on file in the library was "like an answer to a prayer." These representatives of institutions are in a peculiarly favorable position to assist in building up the membership, thereby easing our financial problem, and widening the interest in the subjects with which the Association is concerned. Museum curators, librarians, society secretaries, and educators naturally have extensive acquaintance with, and ready access to, others similarly engaged, and can be of invaluable aid, if they will take it upon themselves to inform these others of the unique value of The Chronicle in its particular field.

Our Finances

Thanks to the generous response of the members to our recent appeal for financial assistance, we now have sufficient funds to cover the cost of this issue, as well as another in July, thus maintaining the bi-monthly schedule for the balance of the fiscal year. It would seem that some plan should be devised to avoid the necessity, in future, of making these special appeals. We are still reluctant to recommend a *compulsory* increase of dues, feeling that it would result in the loss of many members. It may be argued that, if the dues were doubled, our financial condition would be improved, provided less than half of our members withdrew, but, if the purposes of the Association are kept in mind — the dissemination of knowledge concerning early American industry and the encouragement of interest in the subject— it is apparent that, entirely apart from monetary considerations, all possible measures should be adopted to build up the membership, rather than risk a considerable decrease in numbers. A suggestion which has met with considerable favor is that, before next year's dues are billed, the membership be divided into a number of groups with respect to liability for dues — "Regular" at $1.00, "Contributing" at $2.00, "Sustaining" at $5.00, and "Benefactor" at $10.00 and up — giving each member the election as to which class he will join, and presumably accomplishing the same result as by a special appeal for contributions. This would, of course, involve an amendment of the by-laws at the annual meeting, and, in the meantime, we would be glad to know how the members react to the idea, as well as to have the benefit of any other proposals which might be considered at the same time.

Joseph Moxon

Joseph Moxon, whose *Mechanical Exercises* first appeared on January 1st, 1677, was the first English chronicler of the practices of various trades and crafts of his country. He discusses the arts of smithing, joinery or house carpentry, and turning, in his first volume; in the second, and with much greater detail, all branches of printing, and the construction of presses and dies for casting type. With reference to volume I, this is not

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The Chronicle

The History of Stoves

By L. L. THWING

(*Continued from last issue*)

Later this type of fireplace was set out into the room and, by means of a funnel, was connected with the chimney. The portable fireplace then became a stove.

Franklin's invention certainly attracted much interest, not only in the United States, but in Europe. It was advertised in the *Boston News-Letter*, January 31, 1745, as follows:

"New-fashioned Fire-Places or Stoves from Philadelphia, to be sold by Thomas Wade." Also: "Just Published. An account of the new-invented Pennsylvania Fire-Place: Wherein their construction and manner of operation is particularly explained; their advantages above every other method of warming Rooms demonstrated; And all objections that have been raised gainst the Use of them, answered and obviated. Sold by C. Harrison, over against the Brazen Head in Cornhill." — *Boston News-Letter*, February 7, 1745.

One of the "objections" that needed to be "obviated" may have been what is described in the following news item from another newspaper:

"On the 11th Instant, early in the Morning a Fire broke out at Mr. Pierpont's House near the Fortification, occasioned by the Heat of the Iron Hearth of one of the newly invented Fireplaces, whereby the Floor was set on Fire; the People being in Bed, perceived a great Smoke, got up, and happily discover'd and timely distinguished (sic) the Fire."—*Boston Gazette*, December 22, 1747.

The three above quotations are taken from George Francis Dow's recent book, *Every Day Life in the Massachusetts Bay Colony*.

In England, J. Durno published a sort of half-catalogue and half-monograph on stoves. The catalogue half advertises his adaptation of Franklin's stove. He also describes contemporaneous Dutch, German, French and English stoves. James Sharpe also wrote a pamphlet with the title, *An Account of the Principles and Effects of the Pensilvanian Stove-Grates*. This is a catalogue, with cuts of Franklin's stove adapted for burning coal. It also contains quotations from Franklin's own description, originally published in 1744.

In addition to the foregoing evidence of interest and use of stoves, Keep quotes from Singleton's "*Social Life in New York Under the Georges.*" "Cast iron stoves, both square and round, were in use in New York as early as 1732." I am not, however, willing to admit that stoves were common, anywhere in the United States, except in Pennsylvania, and among the wealthy, until after 1800. They may not have been so rare as to be a curiosity among the well-to-do, but, outside of this class and the above locality, I doubt if more than one family out of a hundred had a stove before 1800. The English settlers were not "stove-minded," and furthermore stoves were expensive. Allowing for the difference in purchasing power of the dollar, a stove in the 18th century must have cost over $100.00, which was quite a bit of money, at a time when all the downstairs rooms were heated by fireplaces and everyone was accustomed to cold bedrooms, as indeed many of us were, forty to fifty years ago.

A heating device used to a limited extent in northern New England, transitional between the fireplace and the stove, was the "Copenhagen," — at least this is what it was called in New Hampshire. There was formerly one in the author's home and several others in the neighborhood, all built in the first quarter of the 19th century. The name suggests that it was an adaptation of a Dutch tile stove. The New Hampshire models were built of brick, and were essentially brick stoves connected to the chimney. They were about three feet square and four feet high, so heavy that they required a special brick pier in the cellar to support them. Copenhagens were not "quick heaters," but conversely they did not cool off over night, and so kept the living room at a livable temperature. I would be interested to learn of other localities where this device was used.

Just at the end of the 18th century, two Americans were the leading authorities of the world on heating and ventilation. Benjamin Thompson, of Woburn, (later Count Rumford), published two monographs on domestic heating devices in 1796. Benjamin Franklin, whose reputation as a heating expert had been established by his "portable" fireplace, complains in a letter that, wherever he visits, he is asked to remedy a smoky chimney. In another letter, he discusses the disadvantages of large fire-places and says that a "chimney cloth" (?) is a necessity. He quotes a Spanish proverb:

"If the wind blows on you through a hole,
Make your will and compose your soul."

but urges the necessity for ventilation. The minister of the South Church in Boston wrote him in England, asking him to investigate the advisability of heating the church with stoves. He answered this letter, and it is included in Spark's *Life and Works* (10 vols.), the source of other citations.

Franklin reported that the House of Lords, the Bank of England, and Lincoln Inn Hall are heated by stoves, the latter by "Buzzagles Stoves," the others by "machines in the form of cast iron temples, with columns, cornices, etc." The smoke passed out through underground flues to outside chimneys. There is also a long letter with sketches, discussing the causes and remedies for smoky fire places; also an illustrated description of "a smoke consuming stove" for burning pit coal; presumably his own invention.

BIBLIOGRAPHY

Beckman's *History of Invention* (see "Chimneys"). Feldhaus' *Die Technik* (see "Ofen"). *Early American Cooking Stoves*, William J. Keep ("Old Time New England," Vol. XXII, No. 2, October, 1931). *The Bible in Iron*, Henry C. Mercer.

Joseph Moxon

(*Continued from page 5, column 3*)

only the first English book treating of the tools and methods of the fundamental crafts of iron and wood-working, but it is the first book in any language on these subjects. More especially it is the first of all trade manuals to be written from the viewpoint of the mechanic. The writings of Archimedes, Hero and others of that period of history (200 B.C.) were those of scientists detached from the practical applications of their theories. Agricola's remarkably detailed treatise on mining and smelting is written from the viewpoint of the mining engineer, as is the treatise on foundry practice by Biringuccio. Both of these were published during the 16th century. With these two as possible exceptions, Moxon was the first of all writers to describe and illustrate the tools of a craft and explain their uses. He was the first to write for the instruction of the man who was to use the tools. His book is full of practical details, explained in plain language, printed and illustrated in a most crude and even inaccurate manner.—L. L. T.

Early American Industries Association

Membership

Membership lists should be amended as follows: Corrections are in italics; (N) indicates new member; (S) indicates non-member subscriber; (Ch.) indicates change of address.

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Ansonia: Shull, Lardner H., Box 586 (N)
Hartford: Miller, Charles B., 39 Campfield Ave. (N)

DISTRICT OF COLUMBIA

Washington: Davis, E. L., National Metropolitan Bank Bldg. (N); Reed, Fred C. (Ch. to Division of Engineering, U. S. National Museum)

MASSACHUSETTS

Ipswich: Greene, Robert H., 59 South Main St. (Ch. from Melrose Highlands, Mass.)

NEW JERSEY

Flemington: Godown, Frank O. (N)

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WEST VIRGINIA

Elkins: Williams, Frank C., Randolph Ave. (N).

In spite of several reminders, the following did not renew their memberships for the current year, and, with great regret, we are striking their names from the roster. To save space, last names only are given.

CAL.: *Los Angeles,* Burnap. CONN.: *Danbury,* Chambers, Danbury Public Library; *Fairfield,* Roche; *Greenwich,* O'Neill; *Groton,* Allyn; *Litchfield,* Mills, Sarcka, Spencer; *New Haven,* Willys; *Norwalk,* Millar; *Norwich,* Willey; *Westport,* Bailey, North. D. C.: *Washington,* National Geographic, Staples. ME.: *West Lebanon,* Wentworth. MASS.: *Boston,* Ayers, David; *Leominster,* Doyle; *Marblehead,* Barry, Crowninshield; *Marlborough,* Little; *Newton,* Jump; *Newton Centre,* Janse; *North Penbroke,* Westerling; *Northampton,* Hubble, Lannin; *Pittsfield,* Andrews; *Quincy,* Norris; *Sheffield,* Warner; *Walpole,* Crossman; *Weymouth,* Thayer. N. H.: *Melvin Village,* Dreier; *Walpole,* Baker. N. J.: *Closter,* Haring; *Chatham,* Hall; *Edentown,* Cleveland; *Elizabeth,* Weston; *Englewood,* Glidden, Schenk; *Fairlawn,* Greene; *Hackensack,* Wilson; *Hillside,* Park; *Leonia,* Eckerson; *Madison,* Stair; *Montclair,* Chatellier, Tomlinson; *Morristown,* Gehri (Mr. & Mrs.), Turnbull; *Newark,* Coffey, Francisco, Price; *Norwood,* Dieffenbach; *Orange,* Harvey; *Palisades Park,* Widman; *Perth Amboy,* Pickersgill; *Pine Brook,* Douglas; *Princeton,* Gilmer; *Summit,* Bird, Elliott, Shirley. N. Y.: *Bayside,* Glen; *Bronxville,* Correll; *Brooklyn,* Chiquoine, Harley, Hierholzer, Hunter (both), Strang; *Douglaston,* Hammer; *East Springfield,* Blanchard; *Elba,* Tucker; *Flushing,* Carrigan, Ketchum; *Gloversville,* Hager; *Jamaica,* Fetterolf; *Lake Mahopac,* Travers; *Mineola,* Stumbo; *New Rochelle,* Smyth; *New York,* Allis, Bainbridge, Barcus, Breth, Bull, Conners, Didridisen, Elliott, Fairchild, H. B., Fekete, Finch, Ford, Gipson, Harper, Hause, Kehaya, Kling, Peters, Reinhart, Sach, Shea, Skyberg, Spears, Swift, Trapnell, Wilcox; *Quogue,* Smith; *Riverhead,* S. C. Hist. Soc.; *Schenectady,* Fox; *Sherburne,* Kuhn; *Staten Island,* Hill; *Suffern,* Bispham; *Tarrytown,* Case; *Westhampton Beach,* Havens; *White Plains,* Robacker. O.: *Cincinnati,* Howe; *Cleveland,* Montgomery. PA.; *Chadd's Ford,* Wyeth; *Chester Heights,* Jenkins; *Germantown,* Rodgers; *Guyencourt,* Phelps; *Lebanon,* Gerdes; *Paoli,* Dill; *Philadelphia,* Paxson, Weygandt; *Tunkhannock,* Metcalf; *Wyoming,* Laidacker; *Wyomissing,* Wetzel. TEX.: *Dallas,* Townsend. VT.: *Rutland,* Spofford; *Woodstock,* Harding.

All Oak and a Yard Wide

By LAWRENCE B. ROMAINE

The first recorded ploughs are found on the monuments of Egypt, where they consist simply of wooden wedges,

An Early Harrow of Unusual Type

tipped with iron and fastened to a handle projecting backward, and a beam, pulled by men or oxen, projecting forward. The harrow rivals the plough in antiquity. In its simplest form, it is made by interlacing the boughs of trees. Another old type, found in the middle ages and still in use, is a wooden frame in which iron pegs or tines are set. These were generally superseded by the "zig-zag" harrow, patented by Armstrong in 1839.

The ancient oak harrow in the pictures came from Mansfield, Mass., and conforms to neither pattern exactly. It has been hanging from the ridge pole of a sixty-foot barn for over fifty years. The wood has been well preserved and is as hard as rock. The former owner did not know just how old it is. He could remember having seen it in its lofty cradle since childhood, but could not remember whether the builder was "grandpa" or "great-grandpa." He himself, incidentally, is over seventy. When we made the deal, he climbed up to the supporting beam under the ridge pole as nimbly as a cat, and started to "cut away the rigging". I had quite a job persuading him to let me rope it carefully and let it down tenderly. It weighs about 100 pounds.

The frame is exactly one yard square and built of two inch plank. The dovetailing at the corners is one and three-sixteenths by two inches on the sides, and two inches square on the ends. The oak wheels are eleven inches in diameter and turn on an oak rod or roller almost two inches in diameter. The teeth are eight inches long, carefully whittled, and must have been a real job to turn out. They are mortised into a three-by-four timber. This timber is whittled down to a two-inch pin at the ends and fitted into holes in each side of the frame to enable it to turn when the teeth are thrust down into action.

The upper picture shows the harrow on its wheels with the teeth raised from the ground. In this position, the uprights attached to the timbers that hold the teeth, slant back and are held in place by the ratchet lever resting in a groove in the back frame piece. The upper lever, attached to both the uprights, falls back between the handles. When this lever, with its little hand-whittled handle, is pushed forward, the teeth bite into the soil.

With the exception of the iron brace and ring for the traces, one or two bolts that I believe were added later for strengthening, and six nails, holding two wedges in the two rear corners of the frame and undoubtedly added after original construction, it is solid oak.

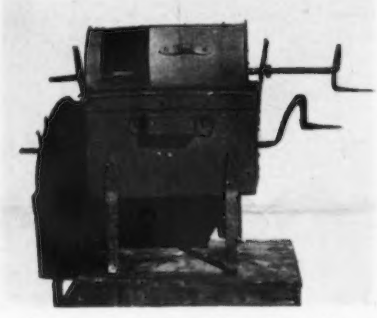
COMMUNICATIONS

From MR. FRANK K. SWAIN:

"In re 'Hinge Manufactory,' the interesting article by Mr. Romaine, CHRONICLE 16, P. 8. In going about with Dr. Henry C. Mercer for more than ten years, examining old dated houses in Pennsylvania, we never found H or HL hinges on houses built after 1776, as the Revolution cut off the supply from England. The British Government had restricted the manufacture of door hardware in the American Colony, in order to protect the workmen in England — and most of our hinges, etc., were imported. According to Dr. Mercer's *Dating of Old Houses*, (a pamphlet, Bucks County Historical Society, Doylestown, Pa.) butt hinges were patented in England, October 3, 1775, and a lot were imported here in a short time. They were of cast iron, and superseded all wrought hinges for inner doors after 1784. The English butt hinges were improved about 1800 and thereafter, and those made in America, as well as other hardware, were crude, ungainly and unsatisfactory, and the English ware was sought for, but we had no trade with the mother country. It would seem that the M'Intosh and Fisher hinges of Needham, made in 1835, mentioned by Mr. Romaine, were probably butts, although the word "Cut" conflicts sadly. Strap hinges, large and small, of wrought iron, were made for outer doors of houses and barns as late as 1860, and these would be "cut," shaped, and perforated for wrought nails that clinched. A large house near Doylestown, Pa., was built in 1776. The pre-Revolutionary door-panels of plain ovolo were used throughout, as they should be at that date, and HL hinges should have been used, as usual, but all doors were hung on butt hinges, and this was the only instance where panels and hinges did not agree as to period. It was later learned that the house remained unfinished for several years after the war started, and we supposed that the doors made before the war were hung on hinges made after the war. It was with great care that I examined Carpenter's Hall, Philadelphia, and found what I expected to see. This building was started in 1770 and closed to the weather that year, and, although occupied or used for various purposes, was not completed until 1791, by which time there had been numerous changes in architectural work, and here I found the pre-Revolutionary outer doors of 1770, with plain ovolo panels and huge HL hinges, as they should be for that period. The inner or partition doors, probably made and hung in 1790 or 1791, had panels of ovolo with outer and inner groove or quirk and were all hung on butt hinges. Both panels and hinges were of post-Revolutionary type, and no HL hinges were found in the interior. Dr. Mercer believed these butt hinges were the first made in England and sent here a few weeks before the Revolution or while the British occupied Philadelphia. While the outer and inner doors differed in style of panel and hinge, each door had panels and hinges that agreed as to period."

From MR. LAWRENCE B. ROMAINE:

"The contraption pictured came from New Hampshire. It is a good example of iron work and reminds one of the Revolutionary field stoves. I have found no one who says with conviction that they 'know' my piece and that it is such and so. It consists of two parts. The base is of sheet iron, and measures 6½" x 9½" each side overlapping the corner and being rivetted to the next piece. The compartment thus formed is reinforced at the top with a moulding made the same way. A handle on each side seems to indicate that it was carried from place to place and was not a permanent fixture in the kitchen. The four legs are wrought iron and the feet are curled up at the end. At the bottom of the 'fire box' are nine square rods making the grate. At two sides are nicely curl tipped forks to hold the spit. The second part, the 'oven' or roasting chamber, is built around the spit and revolves with it. On the inside of the cylinder are small shelves, built in the walls, to shift the coffee or chestnuts to keep them from burning. The handle for turning the oven was probably of wood. The sliding door shown open on the cylinder, runs in a groove. The little 'pinched' holder for opening and closing must get pretty warm! If any member has seen one like it, I would appreciate a date and any information as to its use."



Roaster, for Coffee (?) or Nuts (?)

From MR. JOSEPH E. SANDFORD:

"The French Revolutionary calendar started with the year I in 1792 and ended with the year XIV. Americans sometimes mark the years of Independence, starting at 1776—generally written with the year of the Christian era. But the greatest series of short dates in modern times comes from numbering the years of the century. We are told that William Caxton put 74 on his mark because 1474 was the year of his first printing. A book by Caspar Adeler, printed at Wittenberg, is dated "imXXXiij jar," i.e. 1533 — and another from a Frankfurt press, "Anno XLII" i. e. 1542.

In 1930, an old Pennsylvania-German woman drew a tulip design for my collection. She signed her name and wrote "in 89 year till Feb. 28, 31." And who of us hasn't heard of the Spirit of '76, or the Blizzard of '88? So before we reach for our books on chronology, let us remember this almost too common dating method, and acquaint ourselves with other dating points, or we may find ourselves astray two or three hundred years."

From MR. JOHN W. HIGGINS:

"I wish to extend to my fellow members in the Association a cordial invitation to hold their meeting in this Industrial Museum on any date in September which may be selected by the officers and committee in charge. Worcester, as you know, is located in central Massachusetts, is easily accessible from all parts of the state, especially from Boston over our four-lane Turnpike, and is not far distant by motor from Providence, New Haven, and even New York City. I do not know the geographical location of our membership but am sure that New England and New York State members could reach Worcester without difficulty. As for the facilities of the Museum, we can provide 200 chairs for a meeting in the main nave and can serve luncheon or dinner in the cafeteria of our patron company, the Worcester Pressed Steel Company. If you feel that this suggestion is feasible, I shall be pleased to have you consider the Museum for the meeting place in September and to learn more about the Association's general plans for the annual meeting."